Allergy Abstracts

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Asthma and Hay Fever

Long Acting Corticotrophin in Allergic Disease. Flyles, T. W., and Rose, B.: Canad. M. A. J. **70**: 551, 1954.

ACTH gel was administered subcutaneously to 20 patients with bronchial asthma, to 4 cases with seasonal rhinitis, and to individual cases of pemphigus, periarteritis nodosa, penicillin sensitivity, and ocular macular degeneration. The patients ranged in age from 19 to 73 years and were treated on an ambulatory basis. Most of the patients had received other forms of corticotrophin or cortisone previously. The patients were evaluated both objectively and subjectively and were treated from two to 239 days, the average length of treatment being about thirty days. The doses ranged from 10 to 80 units per injection and were administered at intervals of from 1 to 7 days.

About 50 per cent of the asthmatics and all of the hay fever patients were improved within the first twenty-four hours, while most of the other patients with asthma were benefited within the next twenty-four hours. Two

patients, however, were not relieved of their asthma until the sixth day. The cases of penicillin sensitivity, periarteritis, and pemphigus started to respond within forty-eight hours following institution of therapy. Maintenance dosage for the mild asthmatic ranged between 10 and 20 units every seventh day, but most of the patients needed from 10 to 30 units every other day. Following cessation of therapy, the patients with asthma remained well for periods of from one to six weeks. Eosinophil counts showed about a 50 per cent drop in the first twenty-four hours after therapy was started and there was usually a correlation between the clinical effect and the percentage drop in total eosinophil counts. Mild urticaria which was the only side effect noted during treatment was observed in 4 patients. One case of post-treatment psychosis was thought to have been unrelated to the hormone therapy since the patient had had similar manifestations prior to receiving the corticotrophin. The authors conclude that corticotrophin in the long-acting form is a practical agent for the temporary control of allergic disease.

R. W.

Passive Transmission of the Sensitivity to Taenia Saginata Antigen. (Transmision pasiva de la sensibilidad para antigeno de tenia saginata.) Pisani, S., Poiron, J. M., Pisani de Poiron, M., Guevara, E.: Alergia Revista Iberoamericana de Alergologia. **1**: 89, 1953.

A patient with recurrent asthma between the ages of 7 to 14 years became symptom-free thereafter until the age of 19, when he again developed severe asthma and rhinitis. Coproparasitoscopic examination showed the presence of *Amoeba histolytica* (vegetative form). Intracutaneous tests showed positive reactions to some inhalant and food allergens.

The patients improved rapidly following the elimination of the offenders and the institution of specific and vaccine therapy. He was also given chemotherapy for amebiasis.

A few months later, he had 4 exacerbations of his allergic symptoms prior to the appearance of *Taenia saginata* rings in the stool. He showed a strongly positive skin reaction and developed asthma following an intracutaneous test with an extract made from his own *Taenia saginata*. The skin reaction was passively transferred.

A second patient, aged 13 years, with a positive family history of allergy and a personal history of eczema since infancy was also studied. This child developed asthma at the age of 4 years. Coproparasitoscopic examinations showed the presence of *Amoeba histolytica* (vegetative form). Intracutaneous tests yielded positive reactions to food and inhalant allergens. He improved following the elimination of the offenders and the institution of hyposensitization treatment. He was also given antiparasitic therapy. A few months later he developed an exacerbation of the dermatosis and recurrent asthmatic attacks prior to the appearance of *Taenia saginata* rings in the feces. Following the elimination of the parasites, his symptoms cleared. He showed positive intracutaneous and passive transfer reactions to *Taenia saginata* extract.

Cortés

Otorhinology and Ophthalmology

Tonsillectomy and Adenoidectomy. A Re-evaluation of Results. Johnston, J. A., and Watkins, T. W.: J. Pediat. **44**: 127, 1954.

The effect of tonsillectomy and adenoidectomy on the original complaints for which the procedure was done, was studied in a large group of children.

Many of the children were rechecked following operation. Information on the others was obtained by circularizing the parents.

The report of the parents was highly favorable in regard to the reduction of the incidence of respiratory infections. The group of children rechecked, however, failed to show any diminution in the frequency of respiratory infections. It was felt that as the children get older there is a normal decline in respiratory infections.

Following the operation, 85 per cent of children with bronchitis showed improvement. The percentage of improvement varied with the age of the patient. Among the children under 4 years of age, 50 per cent showed improvement, whereas in the older age group 90 per cent were improved. Among those with sinus infection, only about 50 per cent were improved following removal of tonsils and adenoids.

The operation was performed on 31 children with asthma. Only a small number of cases were done because of poor results obtained in the past. In the youngest group (up to 4 years of age), 2 of 4 cases were improved; in the middle group (5 to 7 years of age), 11 of 15 improved; and in the older group (8 to 14 years of age), 5 of 7 improved. In a group of 22 asthmatic children with a long follow-up record, 7 gave a history of asthma developing for the first time shortly after tonsillectomy, 7 had had asthma previously and were not benefited by the procedure, and 5 were made worse. In only 3 cases did improvement occur, and this was only temporary. An occasional good result was seen in older children in whom there was a clear history that tonsillar infection always preceded the attacks of asthma. J. S.

Miscellaneous Allergies

Penicillin Sensitivity. Collins-Williams, C., and Vincent, J. E.: Canad. M. A. J. **70**: 388, 1954.

The subject of penicillin sensitivity is reviewed and the authors report their findings on the incidence and the diagnosis of these reactions. The records for the past year of a large pediatric hospital where there were about 18,000 inpatient and 83,000 outpatient admissions were examined. Among all these cases, only 3 definite penicillin reactions were observed. There were 5 other probable reactions and 16 possible reactions also mentioned in the hospital records. There were no cases of anaphylactic shock. During the time of this study, 7 adults on the hospital staff who were clinically sensitive to penicillin were observed. This appeared to confirm the general impression that penicillin sensitivity is much more common in adults than children.

The authors skin tested 200 children with aqueous penicillin. Two-thirds of the group were nonallergic. One-third of the children were allergic and were being actively treated in an allergy clinic. Despite the fact that none of these children were clinically sensitive to penicillin, 2 positive reactors were found in the nonallergic group and 1 reactor was observed in the allergic group. Of the 8 clinically sensitive youngsters and adults tested, only 3 positive reactions were obtained on skin testing. In summation, the authors suggest that careful history taking, rather than skin testing, is the most reliable method of detecting penicillin sensitivity. In view of the indefinite results obtained, they further emphasized that skin testing with penicillin does not seem to be a worth while procedure for routine clinical use. R. W.

Periarteritis Nodosa Due to Penicillin. Surdakowski, A. Z.: New York J. Med. **54**: 388, 1954.

A 28-year-old white woman was admitted to the hospital with chills and fever, swelling of the ankles, and tender red areas over the dorsa of the feet.

Three weeks prior to admission she had taken 40 tablets of penicillin orally for a sore throat. On the third, fourth, and fifth day of her hospital admission, penicillin was administered intramuscularly. This was followed by a flare-up of her lesions and the appearance of new lesions over both anterior tibial regions. Penicillin was then discontinued. Examination of sections from these lesions revealed the typical pathologic picture of periarteritis nodosa. All other laboratory findings were normal. The patient made a complete recovery. C.

Enteritis and Urticaria Associated With Trichomonas Hominis Infection. Cohen, S. F., and Stapinski, S. M.: Am. Pract. **5**: 238, 1954.

A 31-year-old man had suffered from recurrent attacks of generalized urticaria, angioneurotic edema and diarrhea for a period of four months. The personal history was negative except for an attack of urticaria five years previously. Physical examination and laboratory findings were essentially negative except for the presence in the stool of large numbers of flagellated protozoa identified as *Trichomonas hominis*. The usual procedures aimed at controlling urticaria and diarrhea were instituted with only slight improvement. The patient was then given Aureomycin, 500 mg. orally every six hours for four days. Within one to two days following completion of this therapy all of the symptoms subsided. Repeated stool examinations for a year following recovery were negative.

Although Trichomonas hominis rarely causes diarrhea, it is not uncommonly found in the intestinal tract and may act as a pathogen. In this case, the successful eradication of the parasite was followed so closely by complete recovery that the diarrhea and urticaria appeared to have been causally related to the presence of the parasite. H. F.

Allergy—A Factor in Abortions? Report on Two Cases. Herrod, J. H.: Am. J. Obst. & Gynec. **66**: 1168, 1953.

Two cases of threatened abortion are presented in which the administration of an antihistaminic drug controlled uterine cramps and bleeding. Both patients had had several spontaneous abortions and had been unable to carry a pregnancy to term. When the drug was stopped, symptoms of impending abortion recurred. When the drug was resumed, symptoms disappeared. Both pregnancies terminated in live births. One patient suffered from hay fever. Hyposensitization therapy was instituted and the first dose resulted in a constitutional reaction during which she developed severe uterine cramps. Intravenous antihistamine therapy relieved all symptoms including the uterine cramps.

The literature on histamine metabolism in pregnancy is reviewed. It is suggested that allergy or at least histamine was the precipitating factor in these two cases of threatened abortion. The author points out the need for further study on this problem. J. S.

Agranulocytosis With Recovery Following the Use of Phenylbutazone (Butazolidin). Archer, B. H., and Kantor, M. G.: New York J. Med. **54**: 394, 1954.

A 43-year-old white woman under treatment for arthritis developed a severe sore throat and fever on the seventeenth day of oral treatment with

phenylbutazone. The dose administered had been 600 mg. daily for two weeks, then 800 mg. daily for three days. The blood picture and bone marrow studies were characteristic of the lymphoid form of agranulocytosis. She was treated with penicillin, Pentnucleotides, and blood transfusions and made a normal recovery.

This is the tenth case of agranulocytosis reported following the use of phenylbutazone. It is not known whether this is a toxic effect of the drug or whether it is due to an individual susceptibility to the drug. There is no way of predicting which patient will develop this serious complication when given phenylbutazone. C.

Anaphylactoid Reaction From ACTH. Report of a Case. Swift, S.: Ann. Allergy **12**: 172, 1954.

A 35-year-old woman with a long history of allergy had received intermittent treatment with ACTH for about one year. After an unstated interval, she was again given an injection of ACTH for an asthmatic attack. About one hour following this treatment she began to feel warm and developed generalized giant urticaria, nausea, and diarrhea, along with difficulty in breathing. The reaction gradually subsided following the oral administration of an ephedrine compound.

Skin tests with ACTH by the scratch and intracutaneous methods resulted in wheal formation associated with pruritus about two hours later. Skin tests performed with ACTH (pork and beef) aqueous, ACTH (pork) gel, and anterior pituitary extract yielded positive reactions. Pork and beef extracts gave negative reactions as did posterior pituitary extract. Passive transfer studies yielded results identical with those obtained by direct skin testing. H. F.

Allergenicity of Modified and Processed Foodstuffs. IV. Orange: Allergenicity of Orange Studied in Man. Ratner, B., Untracht, S., Malone, H. J., and Retsina, M.: J. Pediat. **43**: 421, 1953.

It had previously been shown that orange juice protein and orange seed protein appear to have independent antigenic properties. The allergenicity of orange juice was studied in children, from 2 to 12 years of age. A commercially prepared orange juice for children called Bib, which is said to be free of seed protein or peel oil, was used in these experiments.

By passive transfer studies it was shown that the protein in Bib orange juice did not pass through the intestinal wall even when ingested in large quantities. Positive direct skin reactions and circulating antibodies to orange seed protein were demonstrated in 2 orange-sensitive cases. The authors believe that true allergy to orange is rather rare and in such instances is due to orange seed protein. Orange seed protein may be ingested either when the seed is chewed along with the pulp or when, in the process of extracting the juice, the seeds are broken and the juice becomes contaminated with seed protein.

Orange peel oil was found to be a primary irritant rather than an allergen. The majority of cases of so-called allergy to orange are thought to be due to the peel oil. Most cases of gastrointestinal symptoms and dermatitis attributed to orange are probably pseudoallergic irritation produced by the orange peel oil.

The authors conclude that Bib orange juice, being devoid of seed protein and orange peel oil, is free of allergenic properties and may be ingested safely by patients sensitive to seed protein. J. S.

Anaphylaxis

The Serum Diphenylamine (DPA) Reaction in Experimental Arthritis. Coburn, A. F., and Haninger, J.: J. Exper. Med. **99**: 1, 1954.

Rabbit antiserum prepared against egg-albumin or horse serum was injected intracardially in guinea pigs. One hour later 0.1 ml. of egg albumin or horse serum was injected into the right hind ankle joint. Normal saline was injected in the left hind ankle joint as a control. Joint swelling was measured prior to the injection, one hour later, and every half hour thereafter until the fifth hour. Cardiac blood was withdrawn prior to and twenty-four hours after the injection of antigen and serum from these bleedings was examined for diphenylamine (DPA) reaction. It is believed that the DPA reaction, a color development test, reflects tissue injury and that the reactive tissue is carbohydrate in nature and associated with mucoprotein. The maximal joint swelling was reached in five hours. The DPA level remained low through the eighth hour and rose to a maximum twenty-four hours after the serum injection. Bleeding alone did not affect DPA level, nor did the injection of antigen and normal rabbit serum into the joint, although a slight increase in joint swelling did result. Quantitative study showed that the injection of increasing doses of antibody was associated with increased joint swelling and increased DPA values. When repeated doses of antigen were injected into the joints, progressive joint swelling and continued rise in DPA levels occurred up to the fourteenth day, after which no further increase was noted. Sodium salicylate administered intraperitoneally just prior to antigen injection reduced the joint swelling response to antigen 40 per cent and inhibited DPA rise. When salicylates were given five hours after joint injection, joint swelling was not affected, but DPA rise was blocked. Salicylates administered even as late as twenty-one hours after the injection of antigen reduced the DPA rise by 30 per cent. Similar trials carried out with cortisone, compound F, and a spleen substance, Splenin A, were also highly effective in reducing joint swelling and preventing a rise in DPA level. Splenin B, another spleen substance, aggravated the joint swelling and did not prevent the increase in DPA level. When four joints were injected with antigen, the dose of the drugs which was effective in suppressing the DPA rise in mono-arthritis was only partially effective. It is concluded that the intensity of inflammation as reflected by the DPA reaction is determined not only by the titre of antibody injected but also by the number of antigen depots. The amount of drug required to inhibit the joint swelling index by 50 per cent is termed an Arthus Unit. Approximately 10 times the Arthus Unit of one of the suppressive drugs was required to suppress a DPA rise by 90 to 100 per cent in a mono-arthritis, whereas in polyarthritis this same dose of drug suppressed DPA rise only 44 per cent (cortisone), or 48 per cent (salicylate) or 84 per cent (Splenin A). The possible role of the spleen in suppression of inflammation is discussed. It is suggested that DPA level suppression reflects the ability to suppress tissue injury and that determinations of DPA unit rather than the Arthus Unit in evaluating drugs may be a practical approach to the problem of control of rheumatic diseases. K.

Pharmacology, Physiology, and Pathology

Studies on the Generalized Shwartzman Reaction. III. Lesions of the Myocardium and Coronary Artery Accompanying the Reaction in Rabbits Prepared by Infection With Group A Streptococci. Thomas, L., Denny, F. W., Jr., and Floyd, J.: J. Exper. Med. **97**: 751, 1953.

A strain of Group A streptococcus, type 1, was injected into the abdominal skin of rabbits. Meningococcal or *Serratia marcescens* toxin injected intravenously twenty-four hours later induced a typical Shwartzman hemorrhage-necrosis reaction within two or three hours at the site of the cutaneous infection. Reversal of the injections, delay of toxin administration beyond five days following infection, use of killed streptococci to prepare the skin, or administration of penicillin just prior to infection prevented the occurrence of the Shwartzman reaction. Some of the intracutaneously prepared animals developed generalized Shwartzman reactions with bilateral cortical necrosis of the kidneys. The generalized reaction could be more consistently produced when the live streptococci were introduced intravenously. The animals remained prepared for five or six days when undiluted culture material was used, but only two days when the dose was reduced to a 10-2 dilution. The reaction did not occur if toxin was administered prior to infection, if the streptococci were killed, or if the animals were treated with penicillin even as late as the third or fourth day after infection in animals given toxin on the fourth day.

The earliest change in the kidneys was the appearance of eosinophilic homogeneous material in the lumen of the glomerular capillaries about three or four hours after the injection of toxin. Necrosis of the tubules occurred later. In the heart, acute myofiber necrosis was found in both ventricles of half of the rabbits when large doses of toxin were administered to animals infected intravenously with relatively large doses of streptococci. In animals which lived a week or more, the areas of necrosis contained many multinucleated giant cells and often deposits of calcium. Collections of large mononuclear inflammatory cells with basophilic cytoplasm were also encountered. Similar lesions were found in animals injected with two intravenous injections of toxin. Preparation of the rabbits with smaller doses of streptococci resulted in a sharply decreased incidence of myofiber necrosis and the appearance of a new lesion, fibrinoid necrosis of the coronary arteries within two days after the toxin injection. This lesion was confined to the arteries of the heart and "consisted of the accumulation of masses of homogeneous, eosinophilic material with the staining properties of fibrinoid, within the substance of the arterial wall." Necrosis was usually associated with its presence when it extended into the media or adventitia. Optimal conditions for the production of the lesion and its histopathology are described in detail. Fibrinoid deposits were also found in and on the mitral and aortic valves. In only one instance were streptococci found in the heart. Streptococcal bacteremia as determined by blood cultures at the time of sacrifice or death did not appear to be a necessary condition for the occurrence of fibrinoid necrosis. Cultures were positive in 8 and negative in 16 animals of one series of 24 rabbits, an incidence similar to that of control groups. It is possible, however, for streptococci to be present in the involved tissues despite negative blood cultures. Twenty-two photomicrographs in color were presented.

K.

The Estimation of Circulating Antibody-Antigen Complex. Sternberger, L. A., Maltaner, F., and DeWeerdt, J.: J. Exper. Med. **98**: 451, 1953.

Rabbits were immunized with a single intravenous injection of albumin or globulin. Examinations of their sera were then carried out at intervals to

determine the changes in level of free antigen, antibody, and complement. The sera were treated briefly with alkali at low temperature to dissociate the antigen-antibody complex. When the latter was present, suitable incubation and centrifugation were followed by the appearance of a precipitate which dissolved on mixture with the specific antigen. Serologically, detectable antibody to globulin first appeared on the twelfth day following the injection of antigen. Antigen was not detected in the serum after the tenth day. On the seventh day, sera subjected to alkali dissociation showed precipitates and the maximum precipitates were found on the twelfth day. Complement activity of the sera fell to zero while "spontaneous" precipitation of the dissociated sera was at a maximum and the capacity of the alkali-treated sera to fix complement varied with the quantity of precipitate obtained following dissociation. Following the injection of albumin into rabbits, free antigen was persistent beyond the fortieth day, and free antibody was not found until the one hundredth day. Spontaneous precipitates in dissociated sera were present in trace amounts during the third week after injection and there was no evidence of complement fixation by dissociated sera until the nineteenth day. The precipitates were soluble in beef plasma albumin but not in beef plasma globulin. The complement activity of the fresh sera was completely absent during the third week at the time of appearance of precipitation (and fixation of complement) in the dissociated sera, indicating a limited immune response. Immunization with globulin and Freund's adjuvant intramuscularly speeded up the production of antibody, its appearance time being the eighth day. Dissociated sera of adjuvant-immunized animals did not fix complement and showed spontaneous precipitates only following the appearance of antibody. These precipitates persisted to the eighty-fifth day, and irregularly thereafter past the two hundred twentieth day. A similar pattern was observed when beef plasma albumin was injected with adjuvants. K.

Specificity of Cortisone and Hydrocortisone in Depressing Sensitivity to Tuberculin in Guinea Pigs. Long, D. A., and Spensley, P. C.: Lancet **1**: 645, 1954.

Albino guinea pigs fed on a pelleted diet supplemented with cabbage were injected with B. C. G. vaccine and sensitivity to tuberculin was estimated by the method of Long and Miles. Cortisone, hydrocortisone, their respective 21-monoacetates and related chemical compounds were each suspended in 1 ml. of physiologic saline and injected subcutaneously six hours prior to the tuberculin testing. Reactions were read in twenty-four hours. The active compounds, in a dose of 5 mg. per kilogram, depressed tuberculin sensitivity, whereas substantially larger amounts of the inactive chemicals were without effect. All of the 24 steroids tested either depressed the sensitivity or were ineffective; in no instance was sensitivity enhanced. No difference could be detected in the desensitizing potencies of cortisone, cortisone 21-acetate, hydrocortisone, or hydrocortisone 21-acetate with a dose of 15 mg. per kilogram or a dose of 5 mg. per kilogram. Every change in the cortisone or hydrocortisone molecule (except acetylation of the 21-hydroxyl group) led to a loss of desensitizing power. Theories are presented regarding possible biochemical reactions responsible for the desensitizing action of the hormones.
R. W.

Primary and Specific Anamnestic Antibody Responses of Rabbits to Heterologous Serum Protein Antigens. Dixon, F. J., Maurer, P. H., and Deichmiller, M. P.: J. Immunol. **72**: 179, 1954.

Rabbits were given intravenous injections of I^{131} labeled bovine gamma globulin (I* BGG) or serum albumin (I* BSA) which were repeated twice at

approximately 10-week intervals. Following the injections of antigen, the rabbits were bled at intervals and determination of the amounts of I^{131} in the plasma were made. The concentration of antibody was estimated by measuring the antigen-precipitating capacity of the serum.

The first clear indication of antibody production was the sudden rapid elimination of antigen from the blood. This began from seven to nine days after the first injection of I* BSA, from four to five days after the first injection of I* BGG, and from two to four days after subsequent injections of either antigen. The serum antibody concentration of both the primary and anamnestic responses rose rapidly after elimination of the antigen, reached a maximum within two to four days, and then declined. In the primary response, the rate of antibody decline was comparable to that of passively administered homologous gamma globulin in the rabbit. Thus it appeared that, in the primary response, little new antibody appeared in the serum following elimination of detectable antigen.

In the anamnestic response there were 2 distinct phases in the serum antibody decline. The initial decline lasted from one to three weeks and was slower than that of the primary response. It was also slower than the degradation of gamma globulin. It was attributed to significant antibody production after the elimination of detectable antigen from the serum. Then followed a period of more gradual decline which persisted for at least 192 days. Thus, in the anamnestic response, the major portion of antibody synthesis stopped with the elimination of antigen, but there persisted a significant, slowly decreasing antibody synthesis for more than six months after elimination of all detectable antigen from the serum. M. C.

Studies of Influenza Virus Infection in the Chick Embryo Using Fluorescent Antibody. Watson, B. K., and Coons, A. H.: J. Exper. Med. **99**: 419, 1954.

Developing chick embryos were inoculated in the amniotic sac with PR8 strain of influenza A virus or Lee strain of influenza B virus. Frozen sections of the embryos at various stages of infection were prepared and stained with fluorescein-labeled rabbit or chicken antivirus immune serum. As in the case of mumps virus infection, virus multiplication was greatest in the cells lining the amnion and in the epidermal and pharyngeal epithelium. However, three out of five, 12-day-old embryos inoculated with PR8 strain of virus showed extensive involvement of cells lining the respiratory tract. This occurred at the time of perforation of the tracheal plug and stands in contrast to the progress of mumps virus infection. In the early stages of infection the localization of virus was intranuclear and only later did it spread to involve the cytoplasm. At the peak of infection there was massive cellular destruction and the virus was restricted to cytoplasm and was absent from cell nuclei. The embryos died in from three to six days after infection. In the case of mumps virus infection, the virus multiplied in multiple foci in cell cytoplasm, did not cause histologically apparent tissue damage, and was slower to kill the embryos. It appears that the mechanism of growth of the virus of influenza is different from that of mumps. K.

Miscellaneous

Kinetic Studies on Immune Hemolysis. II. The Reversibility of Red Cell-Antibody Combination and the Resultant Transfer of Antibody From Cell to Cell During Hemolysis. Bowman, W. M., Mayer, M. M., and Rapp, H. J.: J. Exper. Med. **94**: 87, 1951.

The red cell-antibody combination is reversible as shown by experiments revealing transfer of antibody from red cell to red cell or from red cell stromata to intact red cells. The degree of reversibility varies with the rabbit antiserum used. Some antisera were obtained from individual rabbits, and some were from pooled bleedings. Complement was not necessary for the transfer. Antibody transfer can also take place after the interaction of complement with stromata-antibody complex, and hence antibody molecules can perform hemolytic functions repeatedly as long as complement is available. This leads to a catalytic type of kinetic behavior. Red cells and stromata compete for dissociated antibody and as lysis progresses the intact cells obtain relatively less antibody, the stromata obtain proportionately more. Thus the rate of lysis of intact red cells decreases and becomes negligible as complete lysis is approached. These findings substantiate the concept that the hemolytic antibody behaves like an enzyme and that complement is a reactant, being used up in the process of lysis. K.

A New Approach to Increasing Tolerance to Oral Aminophylline. Cronheim, G., Justice, T. T., Jr., and King, J. S., Jr.: Postgrad. Med. **13**: 433, 1953.

Only 50 per cent of patients can tolerate aminophylline orally in doses of 1.0 Gm. per day, which is the minimal amount required to produce a diuretic effect. The nausea and vomiting which occur are due to theophylline liberated by the action of gastric hydrochloric acid. A group of 13 convalescent patients were given 3 gr. of aluminum hydroxide gel and 4 gr. of aminophylline every eight hours. A control group received only aminophylline in similar dosage. Plasma determinations for theophylline by the method of Schack and Waxler were made on both groups. No appreciable differences could be detected in the two groups. It was concluded that aluminum hydroxide did not affect the absorption of theophylline. When aminophylline, in a total daily dose of 1.86 Gm., combined with twice the quantity of aluminum hydroxide, was administered to 15 patients for a period of from six to eight days, it was well tolerated by 11 patients. In control studies, it was found that a total daily dosage of 0.96 Gm. of theophylline alone produced nausea or vomiting in 50 per cent of patients. Hence, the simultaneous administration of aluminum hydroxide and aminophylline in combination permits the tolerance of twice the amount of aminophylline and reduces the incidence of gastric disturbances from 50 to 27 per cent. E. W.

Water-Soluble Contrast Medium for Bronchography. Flipse, M. E., Hedberg, G. A., and Krueger, V. R.: Arch. Otolaryng. **57**: 188, 1953.

Bronchography was performed 79 times on 58 patients with the aid of "xumbradil viscous B." This medium contains 50 to 60 per cent of a water-soluble radiopaque stable organic iodide, iodopyracet, known in the United States by the trade name of Diodrast. To increase the viscosity of the iodopyracet solution and thus retard its rate of flow, sufficient water-soluble ether derivative of cellulose was added to make a 1 to 3 per cent concentration of the latter. It was found that this water-soluble contrast medium was stable, was rapidly eliminated from the lungs, and seemed to possess none of the objectionable features of the iodized oil mediums. It was found to be free of all systemic toxicity even with repeated use in the same person. This is in accord with the nearly universally favorable experience of others with this and the other iodopryacet-carboxymethylcellulose mediums. C.